



DEPARTMENT OF COMMERCE
WEIGHTS & MEASURES DIVISION



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Receipt Date: March 29, 2018
Cal. Date: April 27, 2018
Report Date: April 28, 2018

Report No.: 339221-
Set Serial No.: AK
Barcode: 203367

Calibration Certificate

NORTHERN BALANCE & SCALE, INC
9556 BLOOMINGTON FREEWAY W
BLOOMINGTON, MN 55431
Contact: JOEY KALUSER
Phone: 952-881-7716
PO Number: 23306
Procedure: NIST SOP 4
Technician ID: 19

Item(s) Submitted: Metric Weight Kit - ASTM 2
Manufacturer: Rice Lake
Weight Type: I & II
Equipment ID: None
Condition: Fair
Temperature: 20.9 °C
Pressure: 731.2 mmHg
Relative Humidity: 45.7 %

Nominal Value	Serial No.	CM Correction (mg)		ASTM E617 Class		k	U (mg)
		As Found	As Left	As Found	As Left		
5000 g		-13.9	-13.9	2	2	2.04	3.6
3000 g		2.7	2.7	2	2	2.04	3.5
2000 g		-5.6	-5.6	2	2	2.04	3.1
2000 . g		-2.1	-2.1	2	2	2.04	3.1
1000 g		-1.13	-1.13	2	2	2.04	0.37
1000 . g		-1.83	-1.83	2	2	2.04	0.37
1000 .. g		0.27	0.27	2	2	2.04	0.37
500 g		-0.36	-0.36	2	2	2.03	0.33
200 g		-0.59	-0.59	2	2	2.03	0.20
200 . g		-0.25	-0.25	2	2	2.03	0.20
100 g		-0.046	-0.046	2	2	2.03	0.043
100 . g		-0.271	-0.271	2	2	2.03	0.043
50 g		-0.045	-0.045	2	2	2.04	0.040

The resulting tolerance class of the weight is determined by combining the correction of the weight and the uncertainty of the measurement. The corrections given above correlate to a conventional mass scale versus 8.0 g/cm³ density and an air density of 1.2 mg/cm³. The items listed above have been calibrated using the Standards of the State of Minnesota which are currently in control. These standards are traceable to the SI through NIST. Calibration processes were monitored and found to be in control. All of the tolerances and specifications were evaluated according to ASTM E617 (2013) and MN SAP 20. Uncertainty calculations contain the components in NIST SOP 4 and conform to the ISO/IEC Guide to the Expression of Uncertainty in Measurement (2008), including coverage factors (k) calculated at the approximate 95.45 % confidence level. Results apply to items identified in this report only.

Erik Alfvin

Metrologist

Reviewed by:

Pete Whebbe

Metrologist

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Calibration Report
NBS Calibrations



Program for the specific scope of accreditation
claim product endorsement by NVLAP or any other
ill, without written approval from the laboratory.

United States Department of Commerce

National Institute of Standards and Technology

Certificate of Metrological Traceability For:

Minnesota

This laboratory has demonstrated evidence of an unbroken chain of metrological traceability of its standards to the international system of units (SI), documented measurement uncertainties, uses documented measurement procedures, successfully completed training and proficiency tests, documented calibration intervals, submitted a quality management system, and demonstrated suitable measurement assurance for the Scope listed on this certificate.

The Office of Weights and Measures Program assesses laboratories to NIST Handbook 143 - Program Handbook for State Weights and Measures Laboratories and ISO/IEC 17025:2005.

Scope

Mass Echelon I
 20 kg to 1 mg
 50 lb to 0.001 lb

Mass Echelon II
 20 kg to 1 mg
 1000 lb to 500 lb
 50 lb to 0.001 lb
 4 oz to 0.03125 oz

Mass Echelon III
 50 kg to 1 mg
 5000 lb to 0.001 lb
 4 oz to 0.03125 oz

Weight Carts
 10 000 lb to 2000 lb

Wheel Load Weighers
 20 000 lb to 2000 lb

Railroad Test Cars
 110 000 lb to 80 000 lb

Volume Gravimetric, I
 20 L to 10 mL
 100 gal to 0.25 gal

Volume Transfer, II
 1500 gal to 5 gal
 200 gal to 25 gal LPG



2018 to 2019

Douglas A. Olson

Douglas A. Olson, Chief
 NIST Office of Weights and Measures

Effective Dates: 2018-01-01 to 2019-12-31